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REMARKS

This is a full and timely response to the non-final Official Action mailed October 6, 2005. Reconsideration of the application in light of the above amendments and the following remarks is respectfully requested.

Status of Claims:

By the forgoing amendment, various claims have been amended. Claims 59 and 60 have been withdrawn from consideration pursuant to a Restriction Requirement. No claims have been cancelled or added. Thus, claims 1-58 and 61-67 are currently pending for further action.

The recent Office Action indicated that claims 11, 25 and 26 contain allowable subject matter. Applicant wishes to thank the Examiner for this indication of allowable subject matter.

35 U.S.C. § 112, First Paragraph:

Claim 61 was rejected in the recent Office Action under 35 U.S.C. § 112, first paragraph, as lacking a supporting written description in the specification. Particularly, the last two lines of claim 61 are said to lack supporting written description. This rejection is traversed for at least the following reasons.

Independent claim 61 recites:

A system for displaying an image frame by projection in three dimensions (3D) or in two dimensions (2D) with a projection system, said system comprising:
means for selecting between a 2D mode of operation and a separate 3D mode of operation for said projection system;
means for generating and projecting a left image sub-frame and a right image sub-frame if said 3D mode of operation is selected for said projection system; and

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means for generating and projecting a 2D image frame if said 2D mode of operation is selected for said projection system;
wherein said left and right image sub-frames are left and right perspectives during a frame period if said 3D mode of operation is selected and said 2D image frame is displayed during said frame period if said 2D mode of operation is selected;
wherein said 2D image frame does not comprise sub-frames having different perspectives.
(emphasis added).

Written description for the portion of claim 61 in question is found in the original specification at, for example, paragraphs 0019 and 0020 which describe 3D images as being distinguished from 2D images in that 3D images are composed of sub-frames having different perspectives. Additionally, Fig. 11 of the original specification clearly illustrates the generation and display of a 2D image without sub-frames of different perspectives. It is also perfectly well known in the art that a 2D image frame typically would not, and certainly need not, comprise sub-frames having different perspectives. For at least these reasons, the rejection of claim 61 should be reconsidered and withdrawn.

Prior Art:

With regard to the prior art, claims 1, 5-7, 27-29, 33-35, 45, 46, 64 and 65 were rejected as anticipated under 35 U.S.C. § 102(b) by U.S. Patent No. 5,671,007 to Songer ("Songer"). This rejection is respectfully traversed for at least the following reasons.

Claim 1 recites:

A method of displaying an image frame by projection in three dimensions (3D) or in two dimensions (2D) with a projection system, said method comprising:
selecting between a 2D mode of operation and a separate 3D mode of operation for said projection system;
generating and projecting a left image sub-frame and a right image sub-frame during a frame period if said 3D mode of operation for said projection system is selected; and
generating and projecting only a 2D image frame during said frame period if said 2D mode of operation for said projection system is selected;

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wherein said left image sub-frame defines a visual perspective of a left eye and said right image sub-frame defines a visual perspective of a right eye. (emphasis added).

In contrast, Songer does not teach or suggest a method involving a projection system. Moreover, Songer does not teach or suggest a method of displaying an image that involves a projection or other display system selectively operating in one of two separate modes. Consequently, Songer cannot teach or suggest “selecting between a 2D mode of operation and a separate 3D mode of operation *for said projection system.*”

Songer only teaches that left and right image sub-frames are generated and output. The system of Songer only ever operates in this single mode. According to Songer, “[t]he plurality of left-eye images and the plurality of right-eye images appear three-dimensional when viewed through the pair of viewing glasses, and appear two-dimensional when viewed without the glasses.” (Songer, abstract). Thus, the user can chose to see an image in 2D or 3D by choosing whether to wear the viewing glasses. Irrespective of this, the underlying Songer method and system only operates in a single mode to generate and output left and right sub-frames, rather than selectively outputting left and right sub-frames in one mode of operation *or* a 2D image frame in a second mode of operation, as recited in claim 1. Thus, Songer fails to teach or suggest all the features of claim 1.

The recent Office Action also mentions that, in broadcast television, 2D images are broken down into “fields” for transmission. (Action of 10/6/05, p. 2). This is true, but is wholly irrelevant to the claimed subject matter. A “field” in a frame of video feed is composed of alternating (odd or even) horizontal lines that are interlaced with the lines of a second field to form a frame.¹ Such a “field” is *not* equivalent or relevant to the left/right

¹ See, http://www.adelphia.com/cable_entertainment/hdvtv_details.cfm, “Scan Modes”.

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image sub-frames that compose a 3D image as recited in claim 1. The terms “left/ right image sub-frame” in a 3D image and “field” in a broadcast 2D image are well defined in the art and would never be confused by one of skill in the art as they apparently are in the recent Office Action.

In sum, Songer does not teach or suggest “selecting between a 2D mode of operation and a separate 3D mode of operation *for said projection system*.” “A claim is anticipated [under 35 U.S.C. § 102] only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros. v. Union Oil Co. of California*, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987) (emphasis added). See M.P.E.P. § 2131. For at least this reason, the rejection of claim 1 and its dependent claims based on Songer should be reconsidered and withdrawn.

Independent claim 27 recites:

A display system with a selectable mode of operation for displaying an image frame in three dimensions (3D) or in two dimensions (2D), said system comprising:
a spatial light modulator; and
an image processing unit configured to control said spatial light modulator in a selected mode of operation which is either a 3D mode of operation or a 2D mode of operation;

wherein if said selected mode of operation is said 3D mode of operation, said image processing unit outputs to said spatial light modulator a left image sub-frame carrying a left eye perspective and a right image sub-frame carrying a right eye perspective during a frame period and, if said selected mode of operation is said 2D mode of operation, said image processing unit outputs to said spatial light modulator a 2D image frame to be displayed on a viewing surface during said frame period.
(emphasis added).

In contrast, as demonstrated above, Songer does not teach or suggest the claimed image processing unit “configured to control said spatial light modulator in a selected mode of operation which is either a 3D mode of operation or a 2D mode of operation,” Rather, the

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Songer system has only a single mode of operation. Whether a user perceives a 2D or 3D image depends on whether the use is wearing viewing glasses and has nothing to do with the display system operating in one of two different modes.

As before, "[a] claim is anticipated [under 35 U.S.C. § 102] only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987) (emphasis added). See M.P.E.P. § 2131. For at least this reason, the rejection of claim 27 and its dependent claims based on Songer should be reconsidered and withdrawn.

Claims 19-24, 48, 49, 53, 55, 56 and 66 were rejected as anticipated under 35 U.S.C. § 102(b) by U.S. Patent Application Publication No. 2003/0112507 to Divelbiss et al. ("Divelbiss"). For at least the following reasons, this rejection is respectfully traversed.

Original independent claim 19 recites:

A method of displaying an image in three dimensions during a frame period, said method comprising:
generating a left image sub-frame and a right image sub-frame, said left image sub-frame defining a visual perspective of a left eye and said right image sub-frame defining a visual perspective of a right eye for said image;
displaying said left image sub-frame with an electronic display system, wherein said electronic display system outputs a display of said left image sub-frame utilizing a first plurality of colors; and
displaying said right image sub-frame with said display system, wherein said display system outputs a display of said right image sub-frame utilizing a second plurality of colors;
wherein said first plurality of colors is distinct from said second plurality of colors.

(emphasis added).

In contrast, Divelbiss does not teach or suggest a method in which left and right image sub-frames are displayed utilizing "distinct" sets of colors. In this regard, the Office Action

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cites Divelbiss at paragraph 222. This portion of Divelbiss merely discusses the polarized glasses that a viewer wears when watching three dimensional images. According to Divelbiss at paragraph 222, the glasses use "a color filter material that transmits green light when the input light is linearly polarized in the P1 state and transmits magenta light (the combination of red and blue) when the input is P2 linearly polarized."

In response, Applicant notes that the operation of polarized glasses is aside from, and irrelevant to, the claimed subject matter in which an *electronic display system* outputs left and right image sub-frames utilizing first and second distinct pluralities of colors.

As before, "[a] claim is anticipated [under 35 U.S.C. § 102] only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987) (emphasis added). See M.P.E.P. § 2131. For at least this reason, the rejection of claim 19 and its dependent claims based on Divelbiss should be reconsidered and withdrawn.

Similarly, independent claim 48 recites:

A 3D imaging device, comprising:

- an image processing unit configured to generate image sub-frame data; and
- a color modulator electronically coupled to said image processing unit and configured to generate a plurality of image sub-frames based on said image sub-frame data;

- wherein said color modulator uses a first plurality of colors to output at least one image sub-frame of said plurality of image sub-frames and a second plurality of colors, distinct from said first plurality of colors, to output at least one other image sub-frame of said plurality of image sub-frames.

(emphasis added).

As demonstrated above, Divelbiss fails to teach or suggest a color modulator that is electronically coupled to an image processing unit and that "uses a first plurality of colors to

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output at least one image sub-frame of said plurality of image sub-frames and a second plurality of colors, distinct from said first plurality of colors, to output at least one other image sub-frame of said plurality of image sub-frames." Dibelbiss does not teach or suggest a color modulator electronically coupled to an image processing unit that uses distinct pluralities of colors to generate different sub-frames.

As before, "[a] claim is anticipated [under 35 U.S.C. § 102] only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987) (emphasis added). See M.P.E.P. § 2131. For at least this reason, the rejection of claim 48 and its dependent claims based on Dibelbiss should be reconsidered and withdrawn.

Additionally, independent claim 66 recites:

A system for displaying an image in three dimensions during a frame period, said system comprising:

means for generating a left image sub-frame and a right image sub-frame, said left image sub-frame defining a visual perspective of a left eye and said right image sub-frame defining a visual perspective of a right eye for said image;

means for electronically displaying said left image sub-frame utilizing a first plurality of colors to compose the display of the left image sub-frame; and

means for electronically displaying said right image sub-frame utilizing a second plurality of colors to compose the display of the right image sub-frame;

wherein said first plurality of colors is distinct from said second plurality of colors.

(emphasis added).

As demonstrated above, Dibelbiss fails to teach or suggest a system comprising means for displaying left and right image sub-frames utilizing distinct first and second pluralities of colors. As before, "[a] claim is anticipated [under 35 U.S.C. § 102] only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 2 U.S.P.Q.2d 1051,

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1053 (Fed. Cir. 1987) (emphasis added). See M.P.E.P. § 2131. For at least this reason, the rejection of claim 66 based on Divelbiss should be reconsidered and withdrawn.

Additionally, dependent claim 20 recites “wherein said first plurality of colors and said second plurality of colors comprise different sets of primary colors.” Claim 49 recites similar subject matter.

As demonstrated, Divelbiss does not teach or suggest first and second pluralities of colors. Moreover, Divelbiss certainly does not teach or suggest “different sets of primary colors” as claimed. Divelbiss only teaches a single set of primary colors, red, green and blue. (Divelbiss, paragraph 0048-0059). For at least this additional reason, claims 20 and 49 should be held clearly patentable over Divelbiss.

Claim 2 was rejected as being unpatentable under 35 U.S.C. § 103(a) over the combined teachings of Songer and U.S. Patent No. 5,870,137 to Stuetzler (“Stuetzler”). Claims 3 and 4 were rejected as being unpatentable under 35 U.S.C. § 103(a) over the combined teachings of Songer, Stuetzler and U.S. Patent Application Publication No. 2003/0234790 to Hochmuth et al. (“Hochmuth”). These rejections are respectfully traversed for at least the same reasons given above with respect to claim 1.

Claims 8, 9, 10 and 18 were rejected as being unpatentable under 35 U.S.C. § 103(a) over the combined teachings of Songer and Divelbiss. As demonstrated above, Songer and Divelbiss do not teach or suggest the subject matter of the claims as alleged. Therefore, this

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rejection is respectfully traversed for at least the same reasons given above with respect to independent claims 1 and 19.

Claim 12 was rejected as being unpatentable under 35 U.S.C. § 103(a) over the combined teachings of Songer and U.S. Patent Application Publication No. 2005/0037843 to Wells et al. ("Wells"). Claim 13 was rejected being unpatentable under 35 U.S.C. § 103(a) over the combined teachings of Songer and Anderson (of record). Claim 14 was rejected as being unpatentable under 35 U.S.C. § 103(a) over the combined teachings of Songer and Sato (of record). These rejections are respectfully traversed for at least the same reasons given above with respect to claim 1.

Claim 15 was rejected as being unpatentable under 35 U.S.C. § 103(a) over the combined teachings of Songer and Divelbiss. Claims 16 and 17 were rejected as being unpatentable under 35 U.S.C. § 103(a) over the combined teachings of Songer and Bolas (of record). These rejections are traversed for at least the same reasons given above with respect to claim 1.

Claim 30 was rejected as being unpatentable under 35 U.S.C. § 103(a) over the combined teachings of Songer and Stuetzler. Claims 31 and 32 were rejected as being unpatentable under 35 U.S.C. § 103(a) over the combined teachings of Songer, Stuetzler and Hochmuth. These rejections are respectfully traversed for at least the same reasons given above with respect to claim 27. Additionally, claim 30 recites:

a first buffer for storing said left image sub-frame data to be used by said spatial light modulator to generate said left image sub-frame;

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a second buffer for storing said right image sub-frame data to be used by said spatial light modulator to generate said right image sub-frame; and
a third buffer for storing said 2D image frame data to be used by said spatial light modulator to generate said 2D image frame.

As demonstrated above, Songer only teaches outputting 3D image sub-frames, not 2D image frame data. Consequently, the data output of Songer cannot be separated into the categories of left and right sub-frame data and 2D image frame data. Therefore, irrespective of the number of buffers taught by Stuetzler, Songer could not be modified to include different buffers for different types of image data, namely sub-frame data and 2D image frame data, because Songer does not produce such different types of image data. Therefore, the proposed combination of Songer and Stuetzler would be unworkable and would not have been obvious to one skilled in the art. The recent Office Action failed to respond to this argument which Applicant has made previously.

"Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed Cir. 1992)." M.P.E.P. § 2143.01 (emphasis added). For at least this additional reason, the rejection of claim 30, and its dependent claims, should be reconsidered and withdrawn.

Claim 36 was rejected as being unpatentable under 35 U.S.C. § 103(a) over the combined teachings of Songer and Divelbiss. As demonstrated above, Songer and Divelbiss do not teach or suggest the subject matter of the claims as alleged. Therefore, this rejection is

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respectfully traversed for at least the same reasons given above with respect to independent claims 1 and 19.

Claim 47 was rejected as being unpatentable under 35 U.S.C. § 103(a) over the combined teachings of Songer and Anderson. Claims 50 and 54 were rejected as being unpatentable under 35 U.S.C. § 103(a) over the combined teachings of Divelbiss and Stuetzler. Claims 51 and 52 were rejected as being unpatentable under 35 U.S.C. § 103(a) over the combined teachings of Divelbiss and Bolas (of record). Claims 57 and 58 were rejected as being unpatentable under 35 U.S.C. § 103(a) over the combined teachings of Divelbiss and Songer. Claims 62 and 63 were rejected as being unpatentable under 35 U.S.C. § 103(a) over the combined teachings of Songer and Stuetzler. These rejections are all respectfully traversed for at least the reasons given above with respect to the independent claims from which each claim here rejected respectively depends.

Claims 61 and 67 were rejected as being unpatentable under 35 U.S.C. § 103(a) over the combined teachings of Songer and Taniguchi (of record). This rejection is respectfully traversed for at least the following reasons.

Independent claim 61 recites:

A system for displaying an image frame by projection in three dimensions (3D) or in two dimensions (2D) with a projection system, said system comprising:
means for selecting between a 2D mode of operation and a separate 3D mode of operation for said projection system;
means for generating and projecting a left image sub-frame and a right image sub-frame if said 3D mode of operation is selected for said projection system; and
means for generating and projecting a 2D image frame if said 2D mode of operation is selected for said projection system;

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wherein said left and right image sub-frames are left and right perspectives during a frame period if said 3D mode of operation is selected and said 2D image frame is displayed during said frame period if said 2D mode of operation is selected; wherein said 2D image frame does not comprise sub-frames having different perspectives.

In contrast, the combination of Songer and Taniguichi does not teach or suggest the claimed system for displaying an image frame *by projection and with a projection system*.

"To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974)." M.P.E.P. § 2143.03. *Accord*. M.P.E.P. § 706.02(j). For at least this reason, the rejection of claim 61 and its dependent claims should be reconsidered and withdrawn.

Moreover, the teachings of Songer and Taniguichi cannot be combined to approximate the claimed system as proposed in the Office Action. The teachings of Songer and Taniguichi work on entirely different principles and are incompatible. Songer teaches a system in which 3D images are displayed using mechanical viewing glasses with left and right light valves that open and close at a field rate and in synchronization with a displayed 3D image. (Songer, abstract). In contrast, Taniguichi teaches a "parallax optic" that is selectively activated over an LCD. (Taniguichi, paragraph 0009).

The Office Action has not satisfactorily explained how or why these very different systems could be combined to approximate the claimed invention or why one of skill in the art would have been motivated to do so. It must be remembered that the "mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1420 (Fed. Cir. 1990)." M.P.E.P. § 2143.01. "If the proposed modification or combination of the prior art would change the principle of operation of the prior art

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invention being modified, then the teachings of the references are not sufficient to render the claims prima facie obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959)."

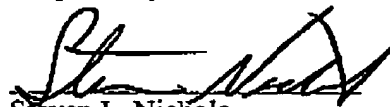
M.P.E.P. § 2143.01. See also, *Gillette Co. v. S.C. Johnson & Son, Inc.*, 919 F.2d 720 (Fed. Cir. 1990) ("An analysis of obviousness of a claimed combination must include consideration of the results achieved by that combination.").

For any and all of these reasons, the proposed combination of Songer and Taniguichi does not render claim 61 obvious. Consequently, the rejection of claim 61 and its dependent claims should be reconsidered and withdrawn.

Conclusion:

For the foregoing reasons, the present application is thought to be clearly in condition for allowance. Accordingly, favorable reconsideration of the application in light of these remarks is courteously solicited. If the Examiner has any comments or suggestions which could place this application in even better form, the Examiner is requested to telephone the undersigned attorney at the number listed below.

Respectfully submitted,



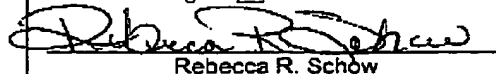
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DATE: January 5, 2006

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Number of Pages: 33



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